

# **SURVEY OF STATE PORTAL INITIATIVES**

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Submitted to the Texas Electronic Government Task Force  
By The Texas Department of Information Resources (DIR)

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## Executive Summary

The Texas State Legislature instructed the Department of Information Resources (DIR) to establish a task force to assess the feasibility of creating an Internet-based system through which state and local governments can interact with the public. An Electronic Government Task Force has since been formed and among its first tasks was implementation of a survey of other states' approaches to electronic government. DIR staff emailed a short-answer survey to 20 states. Formal responses were received from 16 states and then follow-up calls were made to respondents. This report summarizes the findings from that survey and offers several recommendations to the Task Force as it studies the feasibility of electronic government (e-government) in Texas.

The survey process explored the following questions:

- What should be the ultimate purpose of e-government, and how are other states approaching this challenge?
- Who are the ultimate beneficiaries of e-government and how should their needs be prioritized?
- How much does it cost to put government on-line?
- What kinds of challenges are ahead, i.e., what, if any, are the downsides to online government?
- How does e-government really work and what kinds of resources does it take to launch and maintain an effective e-government initiative?
- How long will it take to get e-government up and running in the state of Texas?

Major findings of this survey:

- There is no unified vision for online or e-government across states, partly because e-government is so new, and also because its benefits and costs are not yet clear. But there are some underlying benefits being identified: convenience, greater access to information, and the potential to reduce costs of individual transactions.
- States developing web portals as electronic gateways to government services and information that are self-funding (at no cost to taxpayers) tend to prioritize the needs of the business community first as potential users of "packaged" government information. In these cases, agencies with large data inventories of interest to the private sector are being targeted first for participation.
- Little information is available about the real costs at both the enterprise and agency levels of states' e-government initiatives. There is also little available evidence concerning cost savings due to state web portals.
- All states are grappling in different ways with several challenges that include balancing the needs of private and public sector interests, addressing information privacy and data security issues, coordinating collaboration among levels of government, and articulating the benefits to agencies for participation in the new online model of government.
- Considerable attention to coordinating activities among agencies and various levels of government is required in order for e-government to work smoothly from an enterprise perspective. States reflect a blend of oversight, governing and management structures. The most cohesive models, however, are being led by bodies with a strong mandate and the authority to carry it out.
- It is clear that e-government is a staged and ongoing process. States that contract their portal to the private sector have a shorter initial startup phase.

Summary recommendations to the task force based on this survey:

- There are many beneficiaries of e-government. They include the general public, government itself, and the business community. To address the interests of each of these groups and avoid privileging one at the expense of another, formalized mechanisms should be established to assess beneficiaries' information needs and concerns. Portal services should reflect those needs and include measures for ongoing evaluation of impact.

- Online government should not be positioned as a revenue-generating program for the state of Texas. Instead, online government is an extension of, and an improved delivery method for, basic government services to state residents.
- In a recent study, Texas was one of four states ranked lowest in terms of legislation passed on privacy protection.<sup>1</sup> Addressing the information security, data integrity and privacy concerns of beneficiaries should be a primary concern of the Task Force. Special subcommittees should be formed to study these issues and report findings and recommendations to the Task Force. Each subcommittee should be assigned a subject matter expert. Mechanisms designed to solicit public comment and participation should also be included as an essential element of study processes.
- The Task Force should develop criteria that define the costs and benefits required to put government on-line and to assess the impact of e-government on various constituent groups.
- A cohesive and coordinated effort will be needed to implement e-government in Texas. Statewide leadership of such an effort should be clearly established.

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<sup>1</sup> Wilson, D.L. (1999, October 9). *California ranked near the top in privacy: celebrity culture, technical expertise bolster state's laws*. Washington, DC: Mercury Center.

## Introduction

In July 1997, the White House communicated its vision for a U.S. role in the growing global electronic marketplace. Stating that electronic commerce should be facilitated primarily by the private sector, the Administration also framed its view of a special role for government. First, it stated that government should establish measures to avoid imposing any unnecessary restrictions on the conduct of electronic commerce. Second, government should facilitate a workable legal environment for e-commerce; and finally, government should recognize the uniqueness of the Internet as a global communications medium. Since 1997, significant innovation has occurred related to the development of Internet-facilitated commerce. And experts predict that as the public gains more experience with these emerging online tools and information resources, people will come to expect a similar level of service from government entities.

Evidence of these expectations can be seen around the world as governments implement centralized entry points to their services as vehicles to facilitate greater public participation. The Global Information Infrastructure Commission is one example of this trend.<sup>2</sup> Similarly, the National Information Infrastructure initiative<sup>3</sup> has established an ambitious agenda here in the United States. Now numerous state, county, and municipal governments are actively using the Internet to bring an increasing number of services to the public in electronic form. In the state of Texas, the legislature has been instrumental in promoting this agenda.

Recognizing the importance of electronic commerce to the state and its potential to help increase the effectiveness of state government, the Texas state Legislature mandated the demonstration of electronic government through Senate Bill 974 (Section 2054.062). The 1999 legislation charges the Department of Information Resources with "establishing a task force to assess the current and future feasibility of establishing a common electronic system using the Internet through which state agencies and local governments can accomplish the following types of functions electronically:<sup>4</sup>

1. Send documents to members of the public and persons who are regulated by a state agency or local government;
2. Receive applications for licenses and permits and receive documents for filing from members of the public and persons who are regulated by a state agency or local government that, when a signature is necessary, can be electronically signed by the member of the public or regulated person; and
3. Receive required payments from members of the public and persons who are regulated by a state agency or local government."

Not later than November 1, 2000, DIR was also directed to report the findings of the Task Force and the results of the demonstration project to the presiding officer of each house of the legislature and to the chairs of the committees of each house of the legislature that have primary oversight jurisdiction over DIR.

The task force is composed of a representative of each of the following state officers or agencies:

- the Secretary of State;
- the Comptroller;
- the Texas Department of Economic Development;
- the General Services Commission;
- the Texas Natural Resource Conservation Commission;
- the Texas Department of Insurance;
- the Public Utility Commission of Texas; and
- representatives of local governments appointed by the governor in the number determined by the governor;
- three representatives of businesses that are regulated by a state agency or local government, appointed by the governor; and

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<sup>2</sup> See <http://gii.org/focus/ecommerce/>

<sup>3</sup> See <http://nii.nist.gov/nii/niiinfo.html>

<sup>4</sup> TEX. GOV'T. CODE ANN. § 2054.062 (Vernon 1999).

- three public members appointed by the governor.

To accomplish its mission, the Task Force elected to issue a statewide contract for development of a "common business portal" as a framework through which members of the public and persons who are regulated by a state agency or local government can do the following:

- send documents to members of the public and persons who are regulated by a state agency or local government;
- receive applications for licenses and permits;
- receive documents for filing; and
- receive required payments.

As guidance in the development of this contract, DIR conducted a limited survey of 20 other state portal initiatives. This is a report of the findings from that survey.

## ***Methodology***

DIR staff first conducted preliminary background research on other portal projects around the country. Staff obtained questionnaires about e-government activities being used by organizations such as the National Electronic Commerce Coordinating Committee (NECCC) and the National Association for State Information Resources Executives (NASIRE). Staff also consulted with research with information consulting firms such as Meta, Giga, and the Gartner Group to identify national trends related to e-government and state web portals. With this information DIR then developed a survey and distributed it via email to e-commerce representatives in 20 states. States were selected based on their known experience with portal projects or because they share similar characteristics as Texas in terms of government structure, population size, and demographics.

Completed surveys were received from 16 out of 20 states. For states that did not return a survey form, researchers reviewed state web pages and also made telephone calls to key individuals for additional information. After reviewing the survey responses, all states were subsequently contacted and interviewed over the phone to glean additional qualitative information about various aspects of these portal projects. A copy of the survey and an overview of responses are contained in the Appendix section of this report. For more detailed information on each state, the reader should consult the States At-A-Glance section.

## ***Organization of the Report***

This report has been organized so that readers can glean trends across states and also gain some comparative information between and among various approaches to state portal development. The following section on *Findings and Recommendations* section summarizes trends observed across states and brings specific issues to the attention of the e-government task force as it moves ahead with development of the state's portal demonstration project. The next section (*States At A Glance*) summarizes activities in each of the states that was surveyed. Finally, several *Appendix* sections provide additional detail, for example, the survey form, a condensed summary of responses to the survey, resources used, and several useful information sources.



## Findings and Recommendations

This section summarizes findings from DIR's survey of 20 states. The research reported is the result of interviews and interpretation of survey responses. Findings, analysis and associated recommendations have been summarized into the following topic areas:

- Scope of State Portal Projects and Initiatives
- Approaches to Oversight, Governing and Management of Portal Projects
- Statutory Frameworks
- Public/Private Partnerships
- Methods of Assessing Costs/Benefits
- Portal Services
- Methods of Handling Data Security, Data Integrity, and Information Privacy Concerns
- End-User Needs and Accessibility Issues

### ***Scope of State Portal Projects and Initiatives***

**Issue and Research Approach:** Texas seeks to adopt an enterprise approach to development of its state web portal. Therefore the survey sought information about the pros and cons associated with such an approach. Several questions asked about the general status of electronic government in each state. Follow-up telephone interviews also helped researchers discern information about the scope of projects in other states.

#### **Findings:**

- There was considerable variation in states' approaches to and perceptions about portal projects. Projects seemed to group into two categories: an enterprise approach and a more limited type of initiative.
- Most states are approaching their state web portal from an enterprise perspective. They report having or planning a website that will serve as a comprehensive gateway to all state agencies, boards, commissions, and in some cases, county and local government. These enterprise approaches are being handled in one of two ways:
  - 1) state-managed and operated (e.g., Massachusetts, Florida, and Washington), or
  - 2) managed and operated by a private contractor (e.g., Indiana and Kansas, among others).
- An enterprise approach may not reveal the same outcome from state to state. While there seems to be much enthusiasm about the potential of the Internet to transform government processes and make government more accessible to the public, there is also a certain degree of confusion about what various terms and concepts mean. Phrases such as "enterprise approach to government," and terms such as "gateway," and "portal" carry different meanings in different contexts.
- Agency participation in most states interviewed is optional (Pennsylvania indicated that participation at some level will be required). While participation is not mandated in most cases, active participation by state agencies in e-government projects is considered essential and therefore actively encouraged. Interviews revealed that agencies are more likely to participate if they are able to maintain institutional autonomy in decision-making about information provided through the portal. Also, each instance of agency participation seems to be a carefully negotiated process.
- Because e-government projects are usually broad in focus and require the collaboration of multiple agencies and administrative groups, there is no "one stop shopping" for information about these initiatives, even in states with an explicit enterprise approach. It is difficult to find one person or office in each state that has a comprehensive understanding of all aspects of the state's e-government initiative.

#### **Recommendations:**

- To avoid confusion about the scope of e-government project in Texas state government, it might be helpful to adopt a set of definitions to guide online initiatives. For example, the term "state portal" might be used to refer to a common, comprehensive electronic gateway (or entry point) to state, county, and local government information and services.<sup>5</sup>

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<sup>5</sup> See also this definition of "portal" from America Online: <http://members.aol.com/Im4Justice/Portals.html> and the Glossary included in the Appendix of this report.

- To establish a constructive setting in which to engage state agency participation, the portal initiative should reflect the visions for information resources management that are articulated in the most recent State Strategic Plan for Information Resources Management.
- The portal project should coordinate its actions with other e-government initiatives in Texas state government.

## ***Approaches to Oversight, Governing and Management of Portal Projects***

**Issue and Research Approach:** Certain types of governance processes and administrative structures facilitate an enterprise approach to the delivery of online services and information. Many legacy structures and institutional practices present barriers that delay or block information sharing across agency jurisdictions and these must be addressed by executive levels in state government. Additionally, e-government requires addressing not only technical challenges, but also attention to numerous public policy issues. With these ideas in mind, the survey sought to identify how different states are approaching planning, oversight, and day-to-day management of state web portals.

### **Findings:**

- Though methods of governing and managing state portal projects differed widely among the states interviewed, no state surveyed has completed a portal project without some type of governing board or body. For example, in New York State, a special high level forum has been created to coordinate a statewide approach to e-government. Washington has a cabinet-level subcommittee that is chaired by the governor's chief of staff and the state's technology advisor, and Utah has launched a Digital State Initiative.
- States working toward an enterprise approach have involved the executive branch and/or state leadership. These participants typically include some combination of the following entities: the state's CIO office, the governor's office, the state legislature, and/or the state's lead technology agency.
- In every state, there is a designated portal management group with technical expertise that reports to the governing body. Several states (e.g., Indiana, Arkansas, Maine) have passed legislation to facilitate outsourcing portal operations to a private-sector management group.
- Participating agencies are given autonomy in determining what information will be provided through the portal. A portal management group gains acceptance from agencies by providing assistance and services. In some cases (e.g., Arizona) state CIOs have taken the lead to interest agencies in taking an enterprise approach to the state portal. In other states (e.g., California, Utah's Digital State Initiative) the governor's office has launched an initiative or issued an edict that strongly encourages statewide agency participation.

### **Recommendations:**

- In a decentralized state like Texas, a formalized and coordinated body of several key agencies is the optimal method for designing, implementing, and maintaining a state government portal, regardless of whether or not a private partner is involved.
- The coordinating body needs to be given authority to carry out the portal initiative.
- There needs to be a formalized group made up of technology professionals that can oversee/manage day-to-day operation of the portal.
- Agency participation is an essential component of portal development. Processes and mechanisms should be developed to garner support and participation from state agencies.

## ***Statutory Frameworks***

**Issue and Research Approach:** The survey collected information about how states are approaching legislation, rules, standards and guidelines associated with digital signatures, information privacy, web design and subcontracting agreements for portal development and operation.

### **Findings:**

- Successful e-government initiatives require policies that enable and encourage collaboration and cooperation among diverse government entities. Policy development (e.g., uniform commercial codes, intellectual property protection, privacy, security, content, technical standards) at the enterprise level facilitates cohesive and strategic approaches to implementing online government initiatives that facilitate doing business with the state, protecting individuals' information privacy, and establishing standard data security measures throughout government.

- As mentioned earlier, several states (e.g., Indiana, Arkansas, Maine) have passed legislation to facilitate the outsourcing of portal operations to a private-sector management group.
- It was surprising to learn that none of the states interviewed reported experiencing any formalized public concern over information privacy issues related to their portal projects. Enterprise-level privacy policies, however, are being developed. California is an example of a state that already has legislation that addresses information privacy concerns at the enterprise level.

#### **Recommendations:**

- An enterprise approach to portal development should include the elaboration of statewide policies that address data security, information privacy, and end user access issues.
- Policies should be developed that delineate the scope and accountability of the portal operator in support of statewide policies.
- An investigation should be made about the need for specific legislation enabling the contracting of portal operations.

### ***Public/Private Partnerships***

**Issue and Research Approach:** The State Strategic Plan for Information Resources Management states that making the best use of specialized expertise available in both the public and private sectors allows state agencies to focus on their core missions and goals. Establishing strong, trusted partnerships between the two sectors will help the state manage technology in the most efficient and cost-effective manner possible. Questions about portal management were designed to learn more about how portals are being managed in other states, and how relationships with private contractors are being structured.

#### **Findings:**

- Most of the states in this survey that are contracting out portal operations have specific legislation that establishes an agreement with the private partner. In some cases, outsourcing is handled on a more limited basis. For example, Washington outsourced the initial development of the portal, but retained responsibility for day-to-day operational management.
- Several states (Massachusetts, Florida, and Washington) have developed portals without subcontracting portal operations to a private sector vendor.
- Contracting with a vendor does not necessarily ensure a comprehensive or enterprise approach to a state portal. For example, in Virginia and Arkansas, the portal does not serve as a central gateway (i.e., a single face of government) to all government entities; instead, the portal serves only those agencies that have elected to participate in the vendor-state contract. Virginia reported that its state web page will soon be integrated into the portal website.
- States that have contracted with private vendors bring business-oriented data with strong value-added potential online first, such as drivers' license information, in order to ensure that both the vendor and the state benefit from the contract.

#### **Recommendations:**

- State portals can be effective whether operated by an external party or by the state. Based on the task force's time frame, short-term objectives, and needs of Texas citizens, a decision on how to approach full implementation of the state portal will need to be made.
- Outsourcing portal operation does not outsource the state's responsibility. If contracting with vendors, the state should frame performance expectations, staffing approvals, and desired reports, and incorporate these in any contracts for the operation of state portal services.
- The state web page should be appropriately integrated with business aspects of the portal.
- If contracting with vendors, the state retains the responsibility of planning which applications are brought online. Appropriate care should be taken to ensure that a proper balance of applications is developed that benefits the general public as well as the business community.

### ***Methods of Assessing Costs/Benefits***

**Issue and Research Approach:** As government becomes more available via the Internet, there is a need to assess the "real" benefits and the possible risks that accompany transition to electronic means of gathering and distributing

information. Researchers queried states for concrete proposals, plans, guidelines, and/or reports documenting the costs and benefits of their portal projects.

#### **Findings:**

- No formal examples of studies and/or reports detailing the costs and/or benefits of state portal projects were available from the states interviewed for this study. Most states were only able to provide anecdotal claims about how putting agency information on the Internet has saved time, money, paper, or personnel resources:
  - Benefits to the business community: increased ease of doing business with and in the state, reduced employee time spent on applying for permits, filing taxes, etc.
  - Benefits to the general public: greater access to government information, and greater ease of use in downloading forms or transacting business with government, such as license renewal
  - Benefits to state agencies: better service to the public and reduced staff time spent processing paperwork
  - Benefits to state government: the creation of a single face of government and widespread access to government information
- Few states could provide explicit guidance on the performance measures necessary to ensure portal acceptance, usability, and growth. Indiana was able to provide an example of quarterly reporting requirements to its portal oversight authority, but the reporting reflects only portal activities such as number of agencies online, projects completed, etc. It does not provide a model for assessing impact. Washington provided a copy of a cost-benefit analysis that must be completed before agencies can accept credit cards online, but again, the assessment tool is limited to one specific area.
- Several contacts in follow-up telephone conversations stressed the fact that the portal should not be thought of solely as a revenue-producing mechanism. States are not seeing additional revenues generated by the portals. They suggest that the objectives of the portal should be to benefit the general public and businesses seeking to do business with and in the state.
- While several states contracted under a model of no initial start-up cost to the state, with the vendor relying upon revenue streams from value-added data reporting to operate the portal, this does not mean that there was no cost to the state involved in the contract. A governing board and staff for contract and project management are necessary. Also, several states had applications that simply built an interface with the portal - the maintenance and operation of the back-end databases remained the responsibility of the state, with associated operational costs.

#### **Recommendations:**

- It will be necessary to develop specific costs and benefits, and ways of measuring these, as a portal project will be difficult to support if it lacks measurable goals and reliable information about the real costs and benefits of the project.
- Establishing performance measures will help the state develop and improve the portal. Appropriate measures should be developed that can be used to track outcomes, quality, and operational performance for the portal.
- Clarity about the goals and expected activities of the portal will be critical in order for state leadership and the public to understand how the portal is operated. Explanations of the expenses and potential revenues generated through the portal should be available on a regular basis and updated as new applications are brought online.
- As part of the portal operational planning, costs borne by the state in the effort, including staff on a governing board or contract management staff, should be reported to ensure a true picture of the total cost of the portal.

### **Portal Services**

**Issue and Research Approach:** In a decentralized state like Texas with more than 200 state government agencies, it is a challenge to determine which agencies and information services should be included in a portal demonstration project. This fact guided several questions about the types of services offered through states' web portals. During interviews with respondents, researchers also inquired about how states determine which services to offer in which sequence and for whom and what incentives are being used to encourage agency participation.

#### **Findings:**

- There is no generic model for portal design. Navigational designs differ among states.
- There is no information about usability of state web portals, i.e., no states could provide information about end-user testing of portal services.

- States varied as to the extent of interaction offered through the portal probably because most of these initiatives are so new.
- There was wide variation in the numbers and types of services available through state portal sites. Transactional services offered via portals provide different levels of interaction. A limited transactional service allows an end-user to download a form; however, that person still needs to complete the form off-line and then mail it back to the agency using traditional postal procedures. A full transactional service allows the user both to complete the form and submit it to the agency while on-line.
- In most states, the informational aspect of the portal is integrated with the business aspect. Contracted portals often provide a special link to "premium services" which are subscription-based services that result from the aggregation (usually by the portal's private partner) of several state agency databases. The most common subscription service is transportation related.

#### **Recommendations:**

- There should be seamless integration between the state web page and the services provided to the business community (e.g., through a common business portal). Portal site design should make it easy for end-users to know how to use interactive features of the web portal.
- Prototype navigational designs for the portal should be tested with different end-user groups.

### ***Methods of Handling Data Security, Data Integrity, and Information Privacy Concerns***

**Issue and Research Approach:** Online government is becoming increasingly vulnerable to information security threats. As more information is shared and made accessible via the Internet, there is growing concern about data integrity and personal information privacy protection. Additionally, balancing privacy laws with open records laws represents a public policy challenge for all state agencies. The survey sought information about various approaches to these issues.

#### **Findings:**

- While numerous efforts are underway at federal and state levels to address information privacy concerns, few state web portals have explicit guidelines in place to address privacy issues.
- Policies related to security, data integrity, web standards and other enterprise-level issues are not always published in one location on state web portals. For this reason, it is difficult to discern state policies, rules, guidelines, and standards related to portal development and operation.
- Several states have already implemented digital signatures while others are still in the planning stages. California, Utah, New York, and Virginia have passed legislation related to the use of digital signatures.

#### **Recommendations:**

- Critical attention should be directed to an examination of information privacy issues, especially as the potential for data aggregation increases as more agencies participate in the portal.
- All rules, guidelines, and standards related to state portal operations should be available through the portal.
- Portal operations using digital signatures should adhere to Texas digital signature rules.

### ***End-User Needs and Accessibility Issues***

There are many beneficiaries of e-government. They include the general public, the government, and the business community. The survey included questions to learn how different states are assessing these different end users' information needs and concerns. Findings have been grouped into four areas: 1) individuals with disabilities; 2) language/literacy barriers; 3) access to Internet resources; and 4) policies on charging for public information.

**1. Individuals with Disabilities:** State and local governments must comply with the Americans with Disabilities Act (ADA) guidelines on Internet web pages.<sup>6</sup> Although not included in the survey itself, DIR researchers asked several respondents during telephone interviews about their approaches to ADA concerns.

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<sup>6</sup> Per Civil Rights Division, U.S. Office of the Assistant Attorney General: "...entities subject to title II or III of the ADA must provide effective communication to individuals with disabilities, and covered entities that use the Internet to provide information regarding their programs, goods or services must be prepared to offer those communications through accessible means. Such entities may provide web page information in text format that is accessible to screen reading devices that are used by people with

**Findings:**

- Several states have issued some type of disclaimer about disability access to online government services.

**Recommendations:**

- A mechanism/process should be established to assess and address end-user accessibility issues.

**2. Language/literacy barriers:** Experience in the use of computers to access electronic information varies widely among members of the public. For these reasons, researchers also scanned state portal pages for examples of policies related to assistance to end users on access to state government information.

**Findings:**

- Few states have policies related to language and/or literacy barriers.

**Recommendations:**

- Some effort should be made to examine end-users' capacity to benefit from online government services.

**3. Access to Internet resources:** Federal documentation of an increasing "digital divide" in the U.S.<sup>7</sup> highlights the fact that numerous people do not yet have access to or know how to use computers or the Internet. Increasing the presence of on-line government may benefit many who already have access to these resources while others may be disadvantaged by this, especially if agencies do not continue to support non-electronic information access services.

**Findings:**

- Only one state (Indiana) has linked its portal initiative to any outreach or grant program designed to ensure that state residents have ways to access e-government services.

**Recommendations:**

- A process should be developed that explores end-user access needs. Participants might include the Telecommunications Infrastructure Fund Board, the Texas State Library, the Texas Education Agency, and the Texas Commission for the Blind.

**4. Policies on Charging for Public Information:** There is some level of public debate about whether governments should charge for public information, and if so, how much. Thus, researchers gathered information about different pricing models across states.

**Findings:**

- Several fee-generating models were observed and they are being combined in different ways in different states: 1) a "self-funding", or cost-recovery, model that involves a state contract with a private vendor; 2) a revenue-sharing model with a private contractor; 3) transaction fees for services; and 4) subscription-based services.
- Massachusetts reported experiencing considerable public opposition to charges for public information. The survey respondent suggested that it would be a mistake to position the portal solely as a revenue-generating (cost-recovery) mechanism for state government. Indiana also advised against promoting the portal solely as a revenue-generating mechanism.

**Recommendations:**

- A process should be created to facilitate ongoing study the impact of various policies related to fees for information and services via the state portal.

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visual impairments, and they may also offer alternative accessible formats that are identified in a screen-readable format on a web page" (<http://www.johnco.cc.ks.us/acad/etc/technotes/ada.htm>).

<sup>7</sup> See <http://www.ntia.doc.gov/ntiahome/fttn99/contents.html> for most recent federal report entitled "Falling Through the Net: Defining the Digital Divide."